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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/671,122	09/25/2003	Joel Howard Schopp	AUS920030451US1	7273

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EXAMINER	
WAI, ERIC CHARLES	

ART UNIT	PAPER NUMBER
2195	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/671,122	SCHOPP, JOEL HOWARD	
	Examiner	Art Unit	
	Eric C. Wai	2195	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 October 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-20 are presented for examination.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 1-6, 10-14, and18-19 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-2, 4-6,12-13,15-17,23-24, and 26-28 of copending Application No. 10/671,061.

4. Although the conflicting claims are not identical, they are not patentably distinct from each other because both the present application and copending Application No. 10/671,061 describe methods for setting a thread state to a spin or sleep state based on

criteria, when accessing a held mutex. It would have been obvious to one of ordinary skill that the spinning thread count value of the present Application is equivalent to the average acquisition cost value of copending Application No. 10/671,061.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. Claims 18-20 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

7. Claims 18-20 recite an "apparatus"; however, it appears that the system would reasonably be interpreted by one of ordinary skill in the art as software, per se, failing to be tangibly embodied or include any recited hardware as part of the system. Software is an equivalent means of the apparatus as claimed.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 1-2, 10-11, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tucker (US Pat No. 6,223,204).

10. Tucker was disclosed on IDS dated 09/25/2003.

11. Regarding claim 1, Tucker teaches a method for managing a mutex in a data processing system (col 1 lines 8-12), the method comprising:

attempting to acquire the mutex by a first thread (col 4 lines 7-8); and

in response to a determination that the mutex has already been acquired by a second thread, entering a spin state or a sleep state on the first thread (col 2 line 52-61).

12. Tucker does not teach maintaining a spinning thread count value for a number of threads that are spinning on a mutex or that the determining to enter a spin or sleep state is based on the spinning thread count value.

13. Tucker's invention relates to only two threads and does not describe how the system would operate when more than two threads are attempting to acquire the mutex. However, Tucker does teach that a spinning thread is directed to sleep if the required lock is not expected to become available soon (col 2 lines 55-61).

14. It would have been obvious to one of ordinary skill in the art at the time of the invention to keep track of the number of spinning threads to determine whether to direct an acquiring thread to enter a spin or sleep state. One would be motivated by the desire to use such a metric to determine if a resource would soon be available when there are more than two threads attempting to acquire the resource, as indicated by Tucker.

15. Regarding claim 2, Tucker teaches:

entering a spin state if the spinning thread count value satisfies a first condition (col 2 line 52-54); and

entering a sleep state if the spinning thread count value satisfies a second condition (col 2 lines 55-61).

16. Regarding claims 10-11, they are the computer program product claims of claims 1-2 above. Therefore, they are rejected for the same reasons as claims 1-2 above.

17. Regarding claim 18, it is the apparatus claim of claim 1 above. Therefore, it is rejected for the same reasons as claim 1 above.

18. Claims 3-5, 12-14, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tucker (US Pat No. 6,223,204) in view of Gillespie (US Pat No. 6,269,391).

19. Regarding claims 3-5, Tucker does not teach a spinning thread count threshold value. It is well known in the art to use threshold values for determining different courses of action to take when the threshold is reached as indicated by Gillespie (col 9 lines 7-15, wherein an processor is deemed overloaded if its loading data is above some threshold, and wherein the processor will then shed threads to another processor).

20. It would have been obvious to one of ordinary skill in the art at the time of the invention to include a spinning count threshold value. One would be motivated by the desire to determine whether an acquiring thread should be directed to spin or sleep.

21. Regarding claims 12-14, they are the computer program product claims of claims 3-5 above. Therefore, they are rejected for the same reasons as claims 3-5 above.

22. Regarding claim 19, it is the apparatus claim of claims 2-4 above. Therefore, it is rejected for the same reasons as claims 2-4 above.

23. Claims 6-9, 15-17, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tucker (US Pat No. 6,223,204) and Gillespie (US Pat No. 6,269,391), further in view of Satyavolu et al. (US Pat No. 6,517,587 hereinafter Satyavolu).

24. Regarding claim 6, Tucker and Gillespie do not teach adjusting the spinning thread count threshold value based on an amount of time that is required by a thread to acquire the mutex after sleeping on the mutex.

25. Satyavolu teaches a system in which a queue with an adjustable threshold is used to affect latency of the server (col 3 lines 1-12 and 49-58).

26. It would have been obvious to one of ordinary skill in the art at the time of the invention to include adjusting the threshold value in order to affect the latency (time to acquire the resource) of the system.

27. Regarding claim 7, Satyavolu does not teach adjusting the spinning thread count threshold value based on a number of acquisition attempts that is required by a thread to acquire the mutex after sleeping on the mutex.

28. It would have been obvious to one of ordinary skill in the art that the number of acquisition attempts is equivalent to a latency of the system. Therefore, it would have been obvious to one of ordinary skill to include adjusting the spinning thread count threshold value based on the number of acquisition attempts. One would have been motivated by the desire to quickly estimate the latency of the system when determining whether to spin or sleep.

29. Regarding claims 8-9, Satyavolu teaches decreasing the spinning thread count threshold value if a thread acquires the mutex relatively slowly after sleeping on the

mutex and increasing the spinning thread count threshold value if a thread acquires the mutex relatively quickly after sleeping on the mutex (col 3 lines 1-12 and 49-58, wherein the threshold is decreased if the latency is too high and vice versa).

30. Regarding claims 15-17, they are the computer program product claims of claims 7-9 above. Therefore, they are rejected for the same reasons as claims 7-9 above.

31. Regarding claim 20, it is the apparatus claim of claims 5 and 7 above. Therefore, it is rejected for the same reasons as claims 5 and 7 above.

Response to Arguments

32. Applicant's arguments filed 10/04/2007 have been fully considered but they are not persuasive.

33. Applicant argues:

"In summary, Tucker teaches a system wherein the decision to place a thread in a spinning state or a sleep state is based on the state of the thread owning the mutex lock. Examiner's suggestion to modify Tucker to monitor the spinning thread count, as recited in independent claims 1, 10, and 18, rather than to determine the state of the thread owning the mutex lock would destroy the teachings of the preferred embodiment of Tucker and, therefore, a person of ordinary skill in the art would not seek such a modification."

34. It is the Examiner's position that one of ordinary skill in the art would have known to make the appropriate modification to Tucker to arrive at Applicant's invention. As stated previously, Tucker's teachings refer to managing two threads. In situations where more than two threads are involved, one of ordinary skill in the art would have known to modify Tucker to keep track or how many threads are spinning on a resource. Tucker's primary concern to determine whether to direct a thread to spin or sleep stems from the determination of when the resource is expected to be available (col 2 lines 55-62). Tucker states that it is advantageous for threads to be put to sleep because spinning threads consume substantial processing resources (col 2 lines 34-39).

35. Put another way, if there were multiple threads currently spinning on a resource required by a first thread, the resources would not be expected to be soon available. Therefore, one of ordinary skill would have known to direct the first thread to sleep. On the other hand, if there were only a couple of threads currently spinning on a resource required by a first thread, the resources would be expected to be soon available. Therefore one of ordinary skill would have known to direct the first thread to spin.

Conclusion

36. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

37. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric C. Wai whose telephone number is 571-270-1012. The examiner can normally be reached on Mon-Thurs, 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng - Ai An can be reached on 571-272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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